

OWN CHECK OF ANTIBIOTIC RESIDUES IN DANISH PIGS

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Abstract Examination of antibiotic residues in slaughter pigs has become an integrated part of the Danish pig abattoirs' own check program. The examination of antibiotic residues in pigs is done at random and by suspicion. For slaughter pigs minimum 0.1 percent of the number of animals slaughtered the previous year are examined at random. Each animal expected to contain residues must be checked. Residues of veterinary medicines in Danish slaughter pigs are very rare. In 2004 one pig out of 20,747 pigs checked at random (0.005 percent) was tested positive above the maximum permitted level. Own checks of antibiotic residues have several advantages, especially immediate access to monitoring results for the industry and they enable the abattoir to inform farmers and ask them to perform corrective actions.

Introduction The European Community (EC) has for many years maintained official surveillance of residues in animal products, especially fresh meat. Own checks of residues in fresh meat were introduced as a supplement to the official surveillance program at the latest amendment of this regulation in 1996 (Council Directive 96/23/EC)

In collaboration with other relevant co-operative organizations, a Code for Own Checks of residues of antibiotics in fresh meat was elaborated in 2001.

The principle of own checks of antibiotic residues in pigs is introduced and commented on. Results from the own checks covering the latest 3 years, and results from the Danish official surveillance program covering the latest 10 years concerning slaughter pigs are presented.

Materials and Methods The EC regulation determine that abattoirs shall carry out own checks which ensure

- That only animals - whether by direct delivery or through an intermediary - for which the producer is able to guarantee that withdrawal times have been observed, are received;
- That no animal or animal product contain residue levels which exceed the maximum permitted limit;
- That no animal or animal product contain any trace of prohibited substances or products thereof.

Furthermore, the abattoir must ensure that only products from animals which comply with the above-mentioned requirements are sold, and if the residue level exceeds the maximum permitted limit or contains traces of prohibited substances the abattoir is obliged to inform the local authorities.

Further information about maximum permitted levels is described in Annexes I to IV of Council Regulation # 2377/90.

The involved Danish agricultural organizations have elaborated a code for own checks of residues of antibiotics in fresh meat, and in 2003 the code was approved by the Danish Veterinary and Food Administration. The code has to be incorporated in the own check program of the Danish abattoirs.

The code is a guideline for the abattoir on checks of slaughter animals that ensure compliance with the requirements. In the code, residues mean residues of antibiotics and chemotherapeutics. This definition is made on the basis of *hazard identification*.

The check of residues in slaughter animals consists of three parts:

1. Check of identity—On the basis of ear tags, tattoo numbers on the hams and truck driver's lists the abattoir shall identify each animal received and determine the farm of origin. *Corrective measures*: The abattoir must establish a procedure on how to handle unidentifiable animals, or animals which are incorrectly marked. The abattoir shall define and describe the corrective measure towards a farmer with unidentifiable animals or incorrectly marked animals in order to prevent it occurring again.

2. Check of residues in slaughter animals at random—Frequencies of random tests: For *slaughter pigs* minimum 0.1 percent of the number of animals slaughtered the previous year. For *sows* minimum 0.85 percent of the number of animals slaughtered the previous year.

The test sampling is carried out according to an established random test scheme, where animals and farmers are selected at random. The code describes an example of a method of selection of slaughter animals at random.

Abattoirs that yearly slaughter fewer than 1,000 pigs or 100 sows, shall select from each category at least one sample at random. Carcasses selected for random sampling must be detained until the test result is available. The sample (the one kidney) is forwarded to an accredited laboratory for further examination. Once a year it must be checked out that the random sampling plan is carried

out correctly.

Discovery of residues: If the examination of the kidney at the laboratory reveals residues, the second kidney, together with 100 g of muscle and the liver must be forwarded to another accredited laboratory for verification.

If the verification is positive, but the residue level does not exceed the maximum permitted level the farmer is informed by the abattoir and a “deviation report” is elaborated, including an analysis of the nature of the deviation.

If the residue level does not exceed the maximum permitted level, the carcass or the meat is released for human consumption. If the residue level does exceed the maximum permitted level, the carcass or the meat is condemned.

The abattoir informs the local food authority about the positive verification and furthermore informs them about the corrective measures taken towards the farmer. One effective corrective measure taken towards a farmer, who has had a positive animal exceeding the maximum permitted level, is a visit by an independent veterinarian from the Danish Bacon and Meat Council. At the visit, all the conditions concerning use of antibiotics are examined, including routines about storage, treatment and documentation. Especially, the critical points regarding the use of antibiotics must be observed. If any failures or defects using antibiotics are detected, the veterinarian will propose changes/improvements. The result of the visit is published in a report to the farmer with a copy to the abattoir.

3. Check of residues in slaughter animals by suspicion—Each animal which can be expected to contain residues, for example because of a mark of injection on the body or because the farmer has informed the abattoir that the animal is accidentally delivered before expiry of the withdrawal time, shall be tested.

Results/Discussion Table 1 shows the results from the Danish residue surveillance program from 1994 to 2004. Residues of veterinary medicines in Danish slaughter pigs have always been and are still very rare. Results covering the last three years have not changed this figure.

During the ten-year period from 1994 to 2004 about 0.1 percent of all Danish slaughter pigs have been monitored at random for residues of antibiotics. Only few pigs yearly (about 0.01 percent) have been found positive. While the Danish abattoirs since 2001 have tested nearly 19,000 slaughter pigs a year as own check, the Danish Veterinary and Food Administration tests about 2,000 – 3,000 pigs a year.

Conclusions The introduction in 2001 of own checks in the Danish pig production which ensure

- that only animals for which the producer is able to guarantee that withdrawal times have been observed, are received, and
- that no animal or animal product do contain residue levels which exceed the maximum permitted limit has not increased the numbers of antibiotic positive pigs and by thus reduced the food safety.

Additionally, the immediate access to monitoring results is a benefit for the Danish Bacon and Meat Council. It enables the organization to inform farmers and ask them to perform corrective actions.

References

Council Directive 96/23/EC of 29 April 1996 on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC, *Official Journal L* 125 , 23/05/1996 P. 0010 - 0032

Annexes I to IV of Council Regulation no2377/90 (UNOFFICIAL Consolidated version updated up to 22.12.2004 can be found on <http://dg3.eudra.org/F2/mrli/index.htm>)

Year	# Slaughter Pigs (Millions)	# Random Samples: Statutory Checks (Own Checks)	% Pigs Killed	# Positive Samples	Positive Samples (%)
1994	19.7	17,124	0.07	5	0.04
1995	19.7	17,083	0.09	5	0.03
1996	19.5	16,786	0.09	3	0.02
1997	20.4	16,454	0.08	4	0.02
1998	20.4	17,548	0.09	1	0.01
1999	20.4	18,126	0.09	3	0.02
2000	20.9	20,096	0.10	3	0.02
2001	20.9	9,339 (12,194)	0.10	1	0.005
2002	20.5	3,403 (19,943)	0.11	5	0.03
2003	21.0	3,808 (19,848)	0.11	5	0.02
2004	21.7	1,375 (19,372)	0.09	1	0.005

Table 1 Results of antibiotic residue examination of Danish slaughter pigs 1994-2004 Since May 2001 the Danish abattoirs have monitored the presence of residues of antibiotics as a part of the own checks